

What is claimed is:

1. A chimeric filovirus GP protein comprising GP1
and GP2 wherein said GP1 is chosen from a filovirus
5 different than that of GP2.

2. The chimeric filovirus GP protein according to
claim 1 wherein said GP1 or GP2 is from a filovirus
chosen from the Genera consisting of Ebola and
10 Marburg.

3. The chimeric filovirus GP protein according to
claim 2 wherein said Ebola is chosen from the species
Zaire, Sudan, Reston, and Cote d'Ivoire.
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4. The chimeric filovirus GP protein according to
claim 2 wherein said Marburg is chosen from the
species Musoke, Ravn, and Popp.

20 5. The chimeric filovirus GP protein according to
claim 1 wherein said GP1 is from Ebola and GP2 is from
Marburg.

25 6. The chimeric filovirus GP protein according to
claim 5 wherein said Ebola is strain Zaire and said
Marburg is strain Musoke.

30 7. The chimeric filovirus GP protein according to
claim 1 wherein said GP1 is from Marburg and GP2 is
from Ebola.

8. The chimeric filovirus GP protein according to
claim 7 wherein said Marburg is strain Musoke and said
Ebola is strain Zaire.

9. The chimeric filovirus GP protein according to claim 1 wherein said GP1 is from Marburg strain Musoke and said GP2 is from Marburg strain Ravn.

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10. The chimeric filovirus GP protein according to claim 1 wherein said GP1 is from Marburg strain Ravn and said GP2 is from Marburg strain Musoke.

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11. The chimeric filovirus GP protein according to claim 6 wherein said chimeric GP is EBGp1/MBGP2 identified in SEQ ID NO:2 and conservative substitutions thereof, or an immunologically identifiable portion thereof.

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12. A DNA fragment encoding the chimeric protein of claim 11, said DNA identified in SEQ ID NO:1 and conservative substitutions thereof.

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13. The chimeric filovirus GP protein according to claim 8 wherein said chimeric GP is MBGP1/EBGP2 identified in SEQ ID NO:4 and conservative substitutions thereof, or an immunologically identifiable portion thereof.

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14. A DNA fragment encoding the chimeric protein of claim 13, said DNA identified in SEQ ID NO:3.

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15. The chimeric filovirus GP protein according to claim 9 wherein said chimeric GP is MUSGP1/RVNGP2 identified in SEQ ID NO:6 and conservative substitutions thereof, or an immunologically identifiable portion thereof.

16. A DNA fragment encoding the chimeric protein of claim 15, said DNA identified in SEQ ID NO:5.

17. The chimeric filovirus GP protein according to claim 10 wherein said chimeric GP is RVNGP1/MUSGP2 identified in SEQ ID NO:8 and conservative substitutions thereof, or an immunologically identifiable portion thereof.

18. A DNA fragment encoding the chimeric protein of claim 17, said DNA identified in SEQ ID NO:7.

19. A recombinant DNA construct comprising:
(i) a vector, and
(ii) a DNA fragment encoding a chimeric filovirus GP protein according to claim 1.

20. The recombinant DNA construct according to claim 19 wherein said DNA fragment encodes any of the following chimeric proteins chosen from the group consisting of:

- (i) Marburg Musoke GP1/Ebola Zaire GP2
- (ii) Ebola Zaire GP1/Marbug Musoke GP2
- (iii) Marburg Musoke GP1/Marburg Ravn GP2
- (iv) Marburg Ravn GP1/Marburg Musoke GP2

21. A recombinant DNA construct according to claim 20 wherein said vector is an expression vector.

22. A recombinant DNA construct according to claim 20 wherein said vector is a prokaryotic vector.

23. A recombinant DNA construct according to claim 20 wherein said vector is a eukaryotic vector.

24. A recombinant DNA construct according to claim 20 wherein said vector is a VEE virus replicon vector.

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25. The recombinant DNA construct according to claim 24 wherein said construct is EBOV-MAY SP1 (aa1-501)/MBGV-MUS GP2 (aa436-681).

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26. The recombinant DNA construct according to claim 24 wherein said construct is MBGV-MUD GP1 (aa1-435)/EBOV-MAY GP2 (aa502-676).

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27. The recombinant DNA construct according to claim 24 wherein said construct is MBGV-RVN GP1 (aa1-435)/MBGV-MUS GP2 (aa436-681).

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28. The recombinant DNA construct according to claim 24 wherein said construct is MBGV-MUS GP1 (aa1-435)/MBGV-RVN GP2 (aa436-681).

29. Self replicating RNA produced from the construct of any of claims 24-28.

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30. Infectious alphavirus particles produced from packaging the self replicating RNA of claim 29.

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31. A pharmaceutical composition comprising infectious alphavirus particles according to claim 30 in an effective immunogenic amount in a pharmaceutically acceptable carrier and/or adjuvant.

32. A host cell transformed with a recombinant DNA construct according to claim 19.

33. A host cell according to claim 32 wherein said host cell is prokaryotic.

5 34. A host cell according to claim 32 wherein said host cell is eukaryotic.

35. A method for producing chimeric filovirus GP proteins comprising culturing the cells according to
10 claim 33 under conditions such that said DNA fragment is expressed and said chimeric protein is produced.

36. A method for producing chimeric filovirus GP proteins comprising culturing the cells according to
15 claim 34 under conditions such that said DNA fragment is expressed and said chimeric protein is produced.

37. A vaccine for more than one filovirus comprising viral particles containing one or more
20 replicon RNA encoding chimeric GP from one or more filovirus.

38. A vaccine against Ebola Zaire virus infection and Marburg Musoke virus infection comprising a
25 chimeric GP protein according to claim 5.

39. A vaccine against Ebola Zaire virus infection and Marburg Musoke virus infection comprising a
chimeric GP protein according to claim 7.

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40. A vaccine against Marburg Musoke virus infection and Marburg Ravn virus infection comprising a chimeric GP protein according to claim 9.

41. A vaccine against Marburg Musoke virus infection and Marburg Ravn virus infection comprising a chimeric GP protein according to claim 10.

5 42. A vaccine against Ebola Zaire virus infection and Marburg Musoke virus infection comprising infectious alphavirus particles produced from replicating RNA produced from the construct of claim 25.

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 43. A vaccine against Ebola Zaire virus infection and Marburg Musoke virus infection comprising infectious alphavirus particles produced from replicating RNA produced from the construct of claim 26.

 44. A vaccine against Marburg Musoke virus infection and Marburg Ravn virus infection comprising infectious alphavirus particles produced from replicating RNA produced from the construct of claim 27.

 45. A vaccine against Marburg Musoke virus infection and Marburg Ravn virus infection comprising infectious alphavirus particles produced from replicating RNA produced from the construct of claim 28.

 46. A pharmaceutical composition comprising a chimeric peptide encoded by any of SEQ ID NO:1, 3, 5, or 7 in a pharmaceutically acceptable amount, in a pharmaceutically acceptable carrier and/or adjuvant.

 47. A bivalent filovirus vaccine antigen comprising a chimeric GP protein comprising GP1 or a

portion thereof from a first filovirus and GP2 or a
portion thereof from a second filovirus, said antigen
able to elicit an immune response to two filoviruses
in a subject.

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48. A multivalent filovirus vaccine antigen
comprising a chimeric GP protein wherein GP1 and GP2
are comprised of portions of GP1 and GP2 chosen from
different filoviruses, said antigen able to elicit an
10 immunt response to more than two filoviruses in a
subject.

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2025 RELEASE UNDER E.O. 14176